

Culver City's City-Wide Best Management Practices Treatment Train Proposition 50 Grant



bay restoration commission
STEWARDS OF SANTA MONICA BAY



CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

April 14, 2005 Grant Agreement

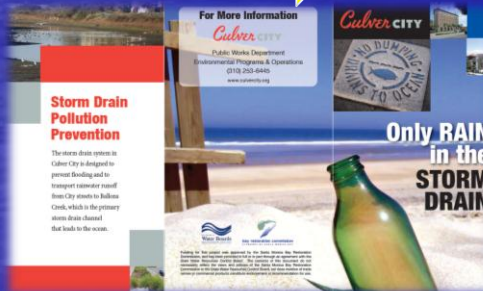
Grant Funds	\$1,194,100
Required Match	\$720,251



Project Scope

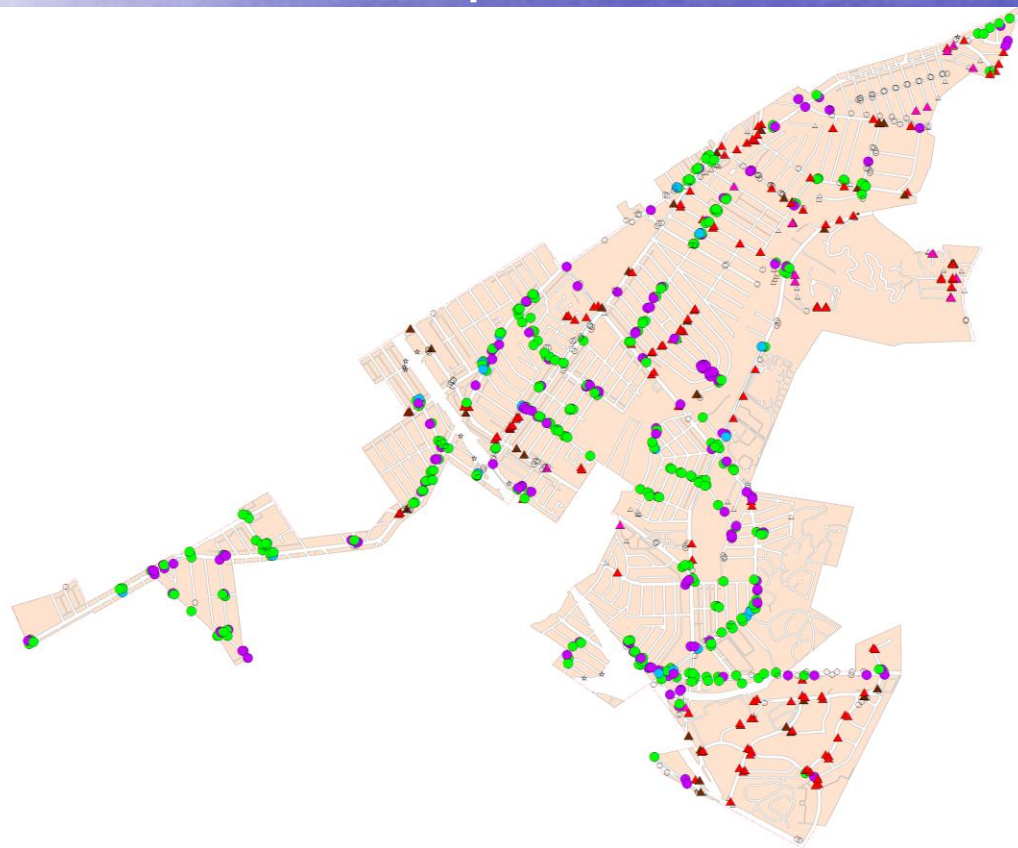


Public Outreach



Trash Screens on Catch Basins

1054 Automatic Retractable Screens
and Connector Pipe Screens



Automatic Retractable Screen



Connector Pipe Screen

Trash Screens on Catch Basins

Challenges:

- Insolvency of First Contractor
- Developing LACFCD Permit Policy
- CPS Sizing issues

Keys to Success:

- Flexibility in Permit Process
- Great Contractor (G2 Construction)

Effectiveness CB Inserts

Estimate of Annual Trash Capture		
Year	No. of CPS	Estimate of Lbs. Trash Captured by CPS (154.9 X No. CPS)
FFY 2011-12	156	24,164
FFY 2012-13	156	24,164
FFY 2013-14	239	37,021
FFY 2014-15	445	68,930



Trash and Recycling Receptacles

95 Trash and Recycling
Receptacles



Effectiveness

Trash and Recycling Receptacles

1. 95 Receptacles Installed
2. Est. 92,000 pounds of trash and recycled material removed annually
3. Avg 40% is recyclable and 60 % is trash.
4. 37,000 pounds/year recycled material
5. 55,000 pounds/year trash.



Trash TMDL Compliance

1. The Ballona Creek Trash TMDL requires Zero Trash by September 30 2015.
2. The City is in Compliance with the Trash TMDL.

City Annual Trash Generation = 160,000 lbs. (2013-14)

Connector Pipe Screen Capture = 68,930 lbs.

Trash Receptacle Collection = 92,000 lbs.

$160,000 - 68,930 - 92,000 = -930$ **ZERO TRASH !!**

Rain Gardens

Baldwin Avenue Rain Gardens (four each)



2100 SF rain gardens to treat and infiltrate flows from 5.6 Ac. residential area.

Public Works Yard Rain Gardens and Cistern

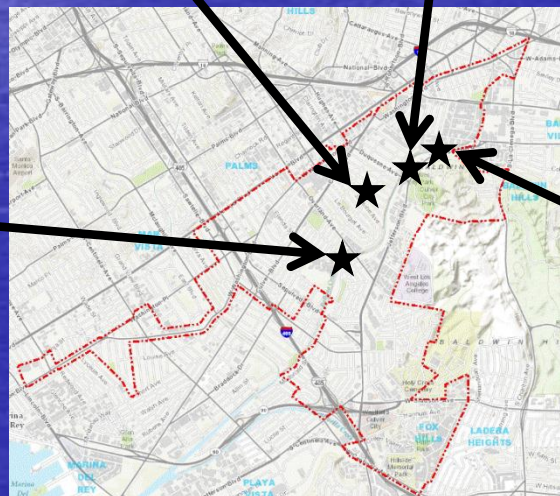


4000 SF rain gardens to treat and infiltrate 1.7Ac. runoff and 3000g cistern to store roof drainage.

Ballona Creek Rain Garden



Rain garden to treat and infiltrate runoff from 3.4 Ac school property.



Transfer Station Rain Gardens



2050 SF rain garden to treat and infiltrate runoff from 1.17 Ac Transfer Station and street drainage.

Public Works Yard Rain Garden and Cistern



4000 SF of Rain Garden (excavation, fabric, subdrain, planting media and retaining walls)
3,000 Gallon Cistern collecting roof runoff. (1.7 Ac.)

Culver CITY

Public Works Yard Rain Garden and Cistern



Before



After

4000 SF of Rain Garden (excavation, fabric, subdrain, planting media and retaining walls)
3,000 Gallon Cistern collecting roof runoff.



BALLONA CREEK

Culver CITY

PUBLIC WORKS FACILITY RAIN GARDENS

CISTERN

This facility has been equipped with a 2,000 gallon rainwater cistern to capture rainwater for irrigation use during dry periods. The cistern collects and stores roof runoff that would otherwise flow to the street, creek and ocean. Cisterns can be used on any property, and many have been installed in residential areas to store roof runoff for irrigation purposes. Cisterns are an effective way to reduce urban runoff and reduce water consumption.

RAIN GARDENS

Rain Gardens are areas created specifically to collect and percolate rainwater. They can be built where the soil is relatively porous and where building foundations won't be affected.

The landscaping in front of this facility was transformed into rain gardens in 2012 by the City of Culver City to capture, filter and percolate urban runoff from this 1.7-acre site. Doing so removes pollutants from urban runoff and replenishes groundwater aquifers.

The rain gardens have been planted with native plants which are tolerant of the local climate, soil, and water conditions, and attract local wildlife. The plants perform several functions. Their root systems enhance percolation, maintain soil permeability, and sustain diverse bacteria populations that degrade toxins and reduce pollutant levels. Water filters through the plants and soil layers before entering the groundwater system. Also, through the process of transpiration, rain garden plants return water vapor to the atmosphere.

URBAN RUNOFF

Prior to urbanization in the 20th century, Culver City was largely grass lands capable of absorbing rainfall in large amounts. The present urban setting is mostly impervious surfaces (pavement, streets and roofs) that prevent rainfall infiltration resulting in increased runoff volumes to Ballona Creek. This runoff carries pollutants including bacteria, metals, insecticides, oils and trash to the Creek.



STORMWATER INFORMATION

Information regarding techniques you can employ to reduce stormwater pollution is available from the Culver City Public Works Department Environmental Programs Division.

Funding for this project has been provided in full or in part through the Santa Monica Bay Regional Open Space Authority in accordance with the State Water Resources Control Board.



Interpretive Sign

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Ballona Creek Rain Garden



1,400 SF of Rain Garden (excavation, fabric, subdrain, planting media and retaining walls)
Treats 3.4 Ac of school property.

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Ballona Creek Rain Garden



BEFORE



DURING



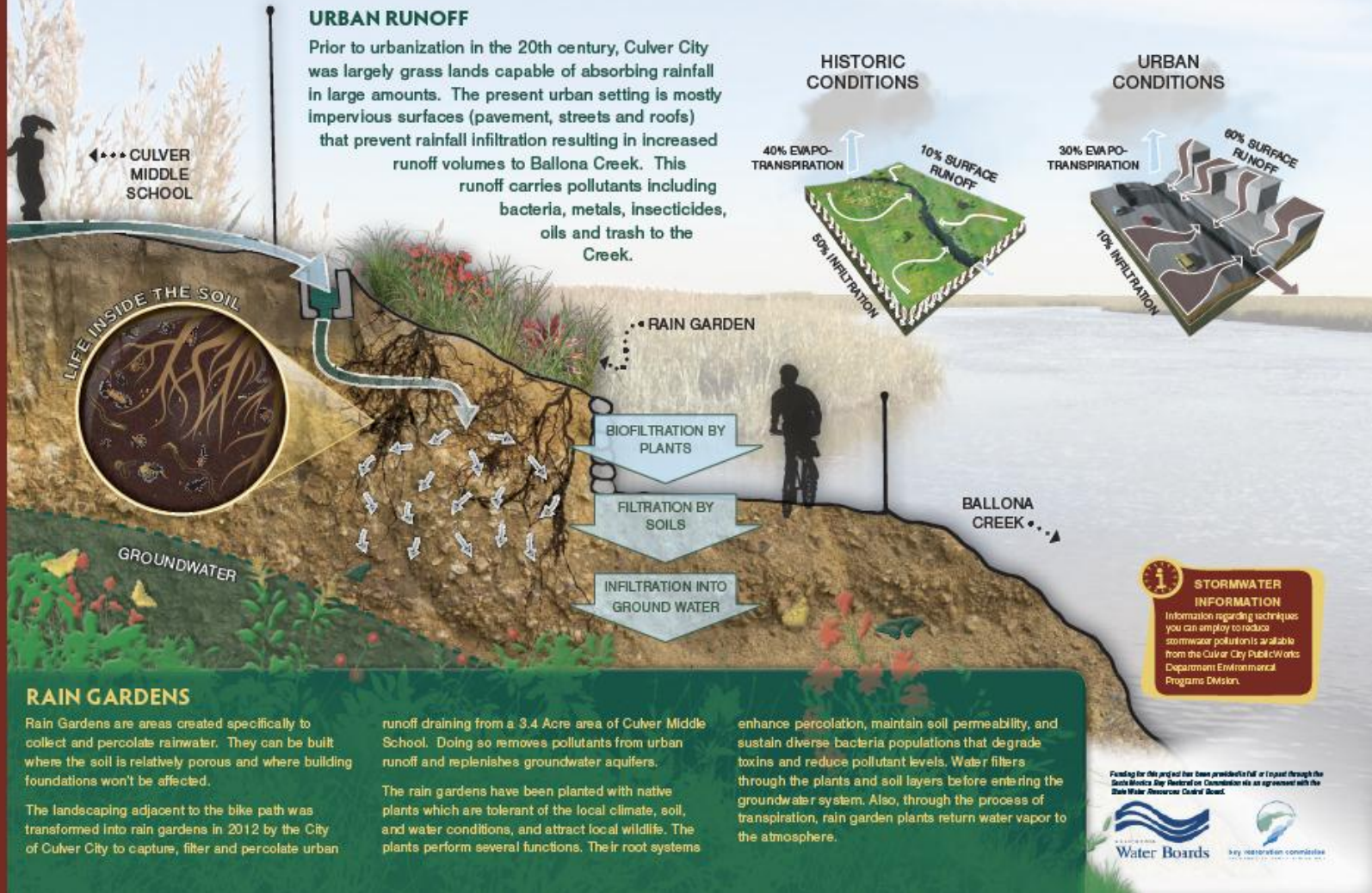
AFTER



BALLONA CREEK

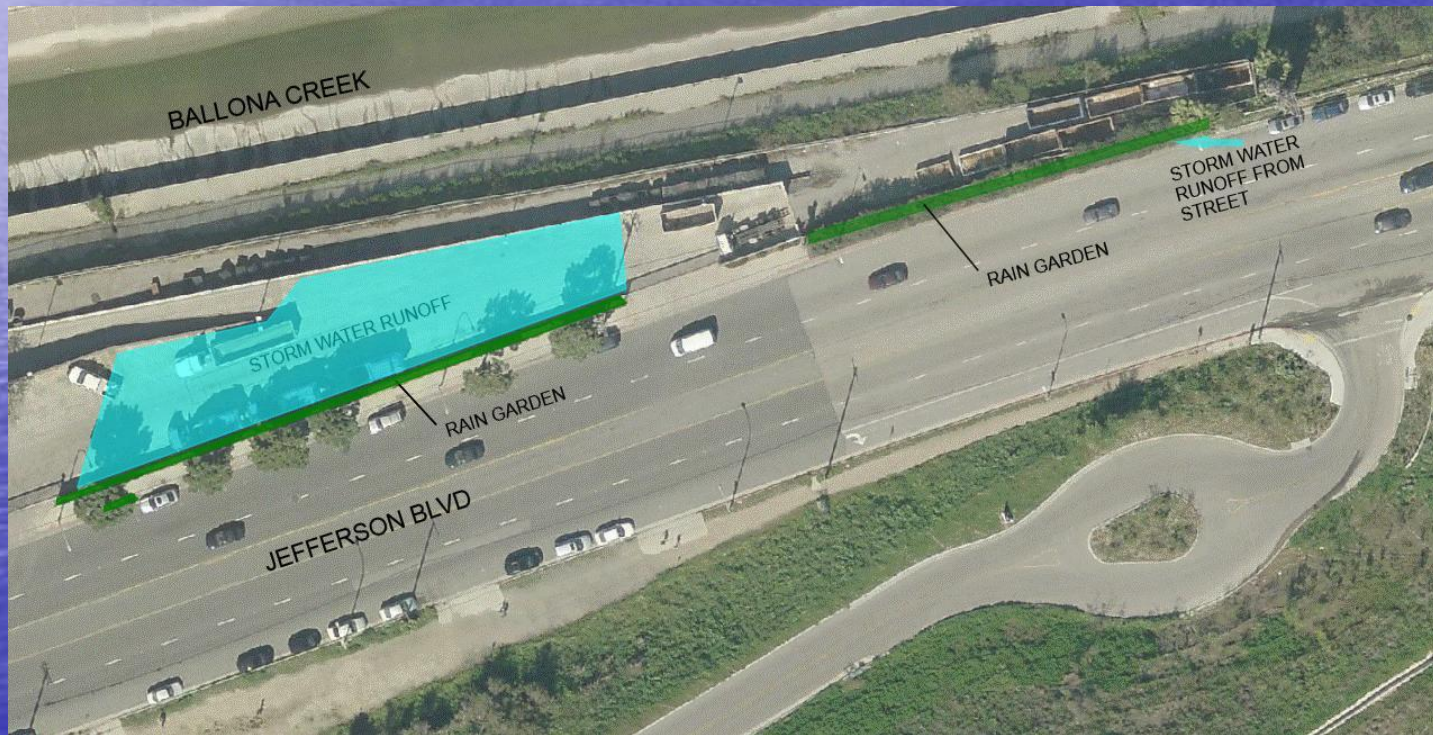
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CULVER MIDDLE SCHOOL RAIN GARDENS



Interpretive Sign

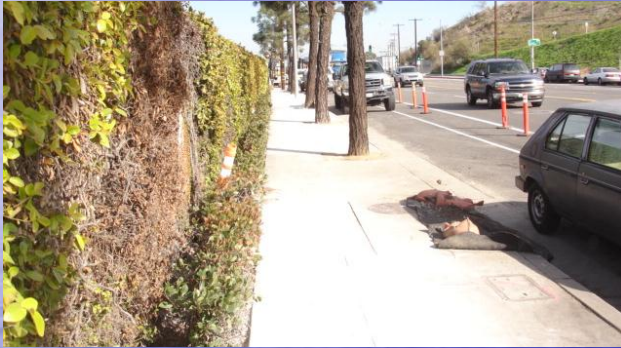
Transfer Station Rain Gardens



2050 SF of Rain Garden (excavation, fabric, subdrain, planting media and retaining curbs)
Treats 7,500 SF of transfer station property and approximately 1 Ac. of street drainage.

Culver CITY

Transfer Station Rain Gardens



BEFORE



AFTER





BALLONA CREEK

Culver CITY TRANSFER STATION RAIN GARDENS



Interpretive Sign

Baldwin Avenue Rain Gardens



2,100 SF of Rain Garden (excavation, fabric, subdrain, planting media and retaining walls)
Treats 5.6 Ac of residential properties and streets.

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Baldwin Avenue Rain Gardens



Pollutants

Monitoring Results

	Location	Limit	Ballona Creek	Baldwin Farrugut West Side	Baldwin Farrugut East Side	City Maint Facility West	City Maint Facility East	Transfer Station
Copper	Results mg/L	0.0140	0.0360	0.0150	0.0420	0.0390	0.0470	0.0480
Lead	Results mg/L	0.0763	0.0091		0.0050	0.0180	0.0130	0.0130
Zinc	Results mg/L	0.1042	1.0000	0.0550	0.0760	0.2200	0.3500	0.2400
Fecal Coliform	Results MPN/100mL	400	40	300	9,000	500	2,540	3,000
Total Coliform	Results MPN/100mL	10000	1,100	2,200	9,000	5,000	2,400	17,000
Enterococcus	Results MPN/100mL	104	12,000	15,000	140,000	4,600	1,600	250,000



Effectiveness of Rain Gardens

Estimate of Annual Pollutant Removal						
Rain Garden Location	Copper (mg)	Lead (mg)	Zinc (mg)	Fecal Coliform (Billion Organisms)	Total Coliform (Billion Organisms)	Enterococcus (Billion Organisms)
Ballona Creek	120,676	30,504	3,352,117	1.34	36.9	402
Baldwin Farrugut	132,550	13,080	281,969	240	269	3889
City Maint. Fac.	68,174	27,574	451,857	24.1	58.7	49.1
Transfer Station	8,154	2,208	40,769	5.10	28.9	425
Total	329,554	70,367	4,126,712	270.5	393	4765
	9.971 Pounds Metals			5.429 Trillion Organisms		

Effectiveness Rain Gardens

1. Rain Gardens will Infiltrate 85th %tile Storm Runoff from 11 Acres.
2. 0.35% of Culver City
3. 0.014% of Ballona Creek Watershed.
4. EWMP estimates Culver City will need at least 50 more projects like this.

Public Outreach

Culver City's Ballona Creek

Ballona Creek has been a central feature of the Culver City landscape since before there was a Culver City! The Gabrielino Indians lived along its shores, and, around 1913 it was used as a location for one of the first movies shot in Culver City!

Ballona Creek has long been the source of occasional flooding, as well as providing irrigation water and rich soils for early farmers. Beginning in 1938, the meandering creek was channelized and over the years a concrete bottom and sides were added. Ballona Creek is the largest storm drain channel in the watershed.

No Pollution is the CLEAR SOLUTION

For More Information


Culver CITY
Public Works Department
Environmental Programs & Operations
(310) 253-6445
www.culvercity.org



Water Boards Bay restoration commission

Funding for this project was approved by the Santa Monica Bay Restoration Commission, and has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the Santa Monica Bay Restoration Commission or the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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on the south. Major tributaries to Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drain outlets.

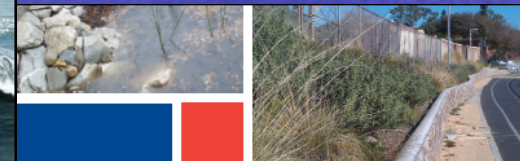
The Ballona Creek Watershed is affected by all the various pollutants that are dumped or deposited anywhere in its drainage area. This includes trash, chemical wastes (paint, pesticides, fertilizers), automotive fluids (oil, gasoline, antifreeze), and also metal dust from copper (auto brakes and roofs), zinc (tires), and lead (wheel weights and fuels).

Rain Gardens

The City is designing and installing Rain Gardens at several sites throughout the community. A Rain Garden is a landscaped area designed to retain rainwater for infiltration into the ground, thereby preventing potential pollutants from entering the storm drain system. The City's first completed Rain Garden is located along side the Ballona Creek bike path, adjacent to Farragut Elementary School and Culver City Middle School. Additional Rain Gardens will be constructed at the City's Public Works Building/City Yard, the City's Transfer Station, and the corner of Baldwin Avenue and Farragut Drive.

Trash and Recycling Bins

Look for new trash and recycling receptacles installed on streets and public property throughout the City. These containers promote recycling, and help prevent litter and refuse from being disposed of on sidewalks and streets.



How Can You Help Keep Ballona Creek Clean?

It's easy to help keep Ballona Creek clean, just remember that anything that goes into a storm drain in Culver City will end up potentially contaminating the Creek. Pollutants directly impact the health of Ballona Creek and ultimately our local beaches and coastal waters.

Remember, *Only Rain In The Storm Drain.*

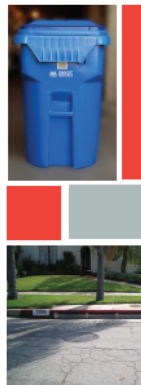
Not Automotive Fluids – Motor oil and filters, antifreeze and radiator fluids can be recycled. Never dump or allow them to drip onto streets.

Not Pet Waste – Always pick up after your dog. Dog waste is an eyesore, is unhealthy, and when left on the ground can wash into Ballona Creek and then to the ocean and local beaches.

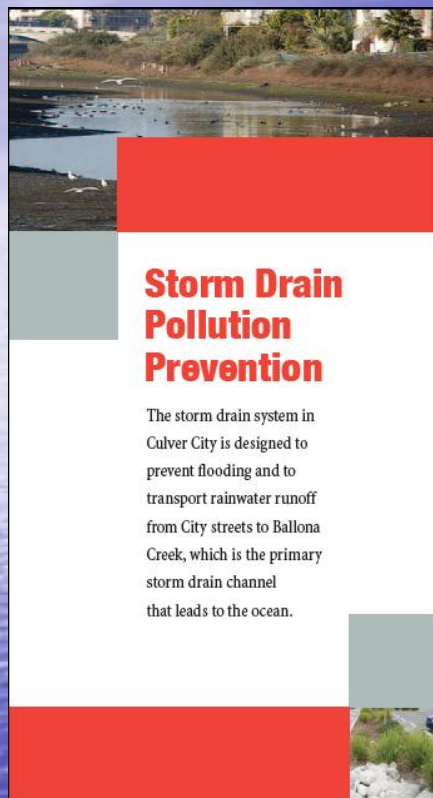
Not Yard Waste – Compost or recycle grass clippings and other yard waste but never sweep or hose into the gutter. They will get into storm drains and can clog them, causing street flooding.

Not Fertilizers and Pesticides – Apply pesticides and fertilizers sparingly, a little goes a long way. Never apply right before or during wet weather; your investment will just wash away! When possible, look for less toxic alternatives.

Not Litter – Never throw trash, cigarette butts or litter in the gutter. Litter that reaches the storm drains will end up polluting our local beaches.



Public Outreach



Storm Drain Pollution Prevention

The storm drain system in Culver City is designed to prevent flooding and to transport rainwater runoff from City streets to Ballona Creek, which is the primary storm drain channel that leads to the ocean.

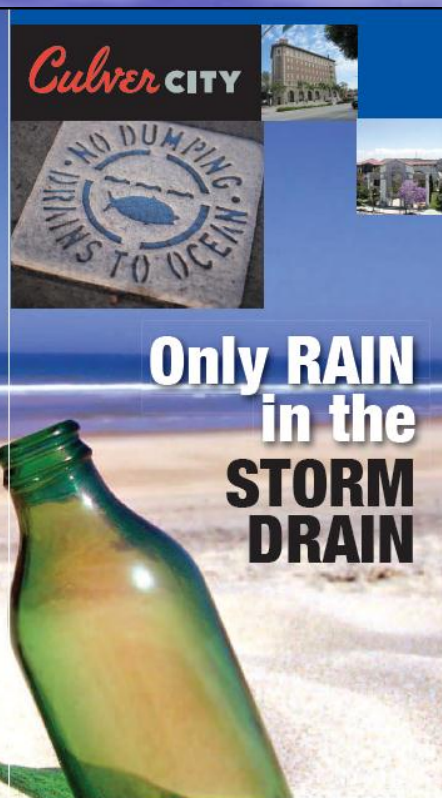
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Only RAIN in the STORM DRAIN



east, and the Baldwin Hills on the south. Major tributaries to Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drain outlets.

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Trash and Recycling Bins

Look for new trash and recycling receptacles installed on streets and public property throughout the City. These containers promote recycling, and help prevent litter and refuse from being disposed of on sidewalks and streets.

How Can Your Business Help Keep Ballona Creek Clean?

It's easy to help keep Ballona Creek clean, just remember **Only Rain In The Storm Drain**. Any type of pollutants, such as trash, oil and other automotive fluids, and industrial chemicals, will directly impact the health of Ballona Creek and ultimately our local beaches and coastal waters.

While every business is different, here are a few steps that any business can take to help prevent storm water pollution:

- Keep your facility clean. Regularly clean floors and grounds.
- Inspect storage areas and equipment for leaks and corrosion, and repair promptly.
- Store materials and waste inside or in covered, bermed areas.
- Store any chemicals in a safe, covered, contained area. Do not mix any chemicals together; store them in their original, labeled container. Recycle or properly dispose of any chemicals used at your business.
- Immediately clean up spills using dry methods.
- Wash vehicles and equipment in designated areas. Do not allow wash water to flow into storm drains.
- Clean parts and equipment only in designated wash areas.
- Pour wash water into a janitorial or mop sink. Clean floor mats, filters and garbage cans in a mop sink, or floor drain. Don't pour wash water or clean items in areas that drain to a parking lot, alley, sidewalk or street.
- Keep the trash dumpster area clean and the lid closed. Don't fill it with liquid waste or hose it out.
- Apply pesticides during dry weather and according to label directions.



Final Costs

Project Costs, Funding and Match					
		Hard Match		Soft Match	
Actual Costs for Project Element	Prop 50 Grant Funds	USEPA Grant Funds	City General Funds (Hard Match)	City Staff Project Management (Soft Match)	Total Cost
1. Rain gardens	\$682,817.02		\$65,552.53	\$188,939.48	\$937,309.03
2. Catch Basin Trash Excluder Inserts	\$374,004.28	\$477,460.04	\$116,399.65	\$244,354.83	\$1,212,218.80
3. Trash and Recycling Receptacles	\$133,448.70		\$25,200.00	\$40,053.74	\$198,702.44
4. Public Outreach	\$3,830.00			\$966.95	\$4,796.95
Total	\$1,194,100.00	\$477,460.04	\$207,152.18	\$474,315.00	\$2,353,027.22
5. Total	\$1,194,100.00		\$684,612.22	\$474,315.00	\$2,353,027.22

Success